

Occupational Health and Safety

Response Plan

Wildfire Smoke

Introduction

Wildfire smoke poses a health hazard to our employees during smoky conditions. This Wildfire Smoke Plan outlines our policies and procedures for protecting employees from exposure to wildfire smoke, in accordance with Washington State Labor and Industries workplace wildfire smoke regulations (Chapter 296-820 WAC).

Scope

The specific jobs and tasks at our workplace covered under this Wildfire Smoke Plan include:

- Groundskeeping and landscaping
- Outdoor maintenance work
- Campus security patrolling
- Athletics
- Any other outdoor activities as determined by job necessity

The following workplaces and operations are exempt from this health and safety program:

- Enclosed buildings or structures in which the windows, doors, bays, and other exterior openings are kept closed, except when necessary to open doors to enter and exit the facility.
- Enclosed vehicles in which the air is filtered by a cabin air filter and the windows, doors, and other openings are kept closed except when necessary to open doors to enter or exit the vehicle and when opening doors to obtain tools from the vehicle.
- Employees exposed to a concentration of NowCast PM_{2.5} of 20.5 µg/m³ (Air Quality Index 69) or more for a total of one hour or less during a work shift.

More information can be found on [L&I's Wildfire Smoke](#) webpage.

Definitions

NIOSH | The National Institute for Occupational Safety and Health of the U.S. Centers for Disease Control and Prevention. NIOSH tests and approves respirators for use in the workplace.

NowCast Air Quality Index (AQI) | The method used by the U.S. Environmental Protection Agency (EPA) to communicate air quality using color-coded categories. It shows the air quality for the most current hour available by using a calculation that involves multiple hours of past data using the NowCast. The NowCast uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. The NowCast is generally updated every hour.

NowCast PM_{2.5} | The concentration of PM_{2.5} for the most current hour available by using a calculation that involves multiple hours of [1] OTS-3201.2 past data using the NowCast. The NowCast uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. The NowCast is generally updated every hour.

Purple Air | Whitworth University owns and maintains outdoor and indoor air quality monitors manufactured by Purple Air. You can view the real-time AQI on campus by visiting Purple Air [HERE](#)

NowCast Washington air quality advisory (WAQA) | The method used by the Washington State Department of Ecology to communicate air quality using color-coded categories. It shows the air quality for the most current hour available by using a calculation that involves multiple hours of past data using the NowCast. The NowCast uses longer averages during periods of stable air quality and shorter averages when air quality is changing rapidly, such as during a wildfire. The NowCast is generally updated every hour.

PM2.5 | Solid particles and liquid droplets suspended in air, known as particulate matter, with an aerodynamic diameter of 2.5 micrometers or smaller. Measured in micrograms per cubic meter ($\mu\text{g}/\text{m}^3$).

Sensitive Groups | People with preexisting health conditions and those who are sensitive to air pollution who are among those most likely to experience health problems from exposure to wildfire smoke. Examples of sensitive groups include:

- People with lung diseases such as asthma or chronic obstructive pulmonary disease (COPD), including bronchitis and emphysema, and those who smoke;
- People with respiratory infections, such as pneumonia, acute bronchitis, bronchiolitis, colds, flu, or those with, or recovering from COVID-19;
- People with existing heart or circulatory problems, such as irregular heartbeat, congestive heart failure, coronary artery disease, angina, and those who have had a heart attack or stroke;
- Children under eighteen years old, and adults over age sixty-five;
- Pregnant women;
- People with diabetes;
- People with other medical or health conditions which can be exacerbated by exposure to wildfire smoke as determined by a physician.

Health Effects and Adverse Symptoms of Wildfire Smoke

Wildfire smoke contains hazardous chemicals, with "particulate matter" (PM2.5) being the primary harmful pollutant for those not close to the fire. PM2.5 can reach the deepest parts of the lungs and be absorbed into the body, causing or worsening cardiovascular disease, respiratory disease, cancer, and harming the nervous system.

Symptoms of Wildfire Smoke Exposure

Respiratory:

- Cough
- Difficulty breathing
- Wheezing
- Shortness of breath
- Asthma attack
- Runny nose
- Sore throat
- Sinus pain or pressure
- Phlegm

Cardiovascular:

- Chest pain or discomfort
- Fast or irregular heartbeat
- Feeling weak, light-headed, faint, or dizzy
- Pain or discomfort in the jaw, neck, or back

Stroke Symptoms:

- Sudden numbness or weakness in the face, arm, or leg, especially on one side of the body
- Sudden confusion, trouble speaking, or difficulty understanding speech
- Sudden trouble seeing in one or both eyes

- Sudden trouble walking, dizziness, loss of balance, or lack of coordination
- Sudden severe headache with no known cause

Other Symptoms:

- Headache
- Scratchy or irritated eyes
- Fatigue or tiredness
- Nausea or vomiting

Symptoms Requiring Immediate Medical Attention:

- Signs of a heart attack (e.g., chest pain, shortness of breath, discomfort in the arms or shoulders)
- Signs of a stroke (e.g., sudden numbness or confusion)
- Wheezing, difficulty breathing, or asthma attacks
- Any concerning symptom per healthcare provider advice

Sensitive Groups

Individuals more at risk from wildfire smoke include:

- Outdoor workers
- Smokers
- Workers under 18 or over 65 years old
- People with respiratory infections or chronic conditions
- People with heart or circulatory problems, diabetes, or pregnancy
- Tribal and Indigenous people
- People with low income

Identification of Harmful Wildfire Smoke Exposures

Whitworth uses the following resources to monitor PM2.5 levels for response planning:

- [Washington's Air Monitoring Network Map](#)
- On-campus AQI readings from Purple Air | [Whitworth AQI](#)
- Air Quality WA mobile app (see QR codes to download)
- [Washington Smoke Information blog](#)
- [Fire and Smoke Map from the US Environmental Protection Agency \(EPA\)](#)

August Weil, HR manager, employment and health, will determine employee exposure to current PM2.5 levels and communicate this information.

Wildfire Smoke Exposure Control Requirements

PM2.5 Level (µg/m ³)	NowCast AQI for PM2.5	Requirements at Current PM2.5 Level
0.0-20.4	0-71	Prepare a written plan, provide training, monitor conditions, prepare a communication system, and make provisions for medical attention.
20.5-35.4	72-100	Notify employees, ensure trained workers are outdoors, and consider exposure controls and voluntary respirators.
35.5-55.4	101-150	High-risk workers should use N95 respirators and N95 is available for voluntary use for other workers. Consider adjusting work schedules to allow for more frequent breaks.
55.5-250	151-350	All workers should use N95 respirators while working outdoors for extended periods. Allow for more frequent breaks as needed or 15 min for every hour worked. High-risk workers should not work outdoors.
250.5-500.3	351-848	Move workers to clean air and distribute N95 respirators for voluntary use. Adjust work hours around current AQI conditions. Reduce work intensity. Recommended to work no longer than 30-minutes with 30-minute breaks indoors in a well-ventilated building. Workers must watch for symptoms and stop working if symptomatic.
500.4-554.9	849-956	Move all work indoors. If working outside, implement a complete required-use respiratory protection program.
555 or more	957 or more	Require respirators with an APF of 25 or more for outdoor work.

Methods to protect employees from wildfire smoke include:

- Providing enclosed buildings or vehicles with adequate filtration
- Portable HEPA filters in enclosed areas with AQI above 150
- Relocating work to areas with lower PM2.5 concentrations
- Adjusting work schedules
- Reducing work intensity
- Additional break periods

Respirator Use for Wildfire Smoke

Respirators will be provided for voluntary use at 35.5 µg/m³ PM2.5 and higher and required use at 500.4 µg/m³ PM2.5 and higher. Whitworth's respiratory protection program will be used, including fit-tests and medical evaluations, for required use conditions.

Respirator Selection, Limitations, and Use

Selection: Use only NIOSH-certified respirators appropriate for PM2.5.

Limitations: Do not use respirators beyond their design limitations.

Use: Follow manufacturer's instructions, perform seal checks, and ensure proper fit and maintenance.

Employee and Supervisor Training

All employees and supervisors will receive wildfire smoke training annually and before working in conditions of 20.5 µg/m³ PM2.5 or higher. Supervisors will undergo additional training.

Wildfire Smoke Hazard Communication for Employees

Whitworth will communicate wildfire smoke hazards to employees when the air quality reaches AQI 72 or higher. Communication methods include Pirate Port announcements, text messages, and supervisor announcements via email.

Emergency Wildfire Smoke Training Program

Wildfire Smoke Exposure Prevention

Employees working outdoors or in areas without mechanical air filtration and exposed to a PM2.5 AQI of 151+ for over an hour must receive:

- Current AQI updates before and during shifts.
- Documented training covering this information.
- Work modifications to reduce exposure.
- Respirators, along with usage instructions and encouragement to use the respirator.

Health Effects of Wildfire Smoke

Wildfire smoke's primary hazard is fine particulate matter (PM2.5), which can cause:

- Lung irritation, coughing, wheezing, and difficulty breathing.
- Severe issues like reduced lung function, bronchitis, asthma aggravation, heart failure, and early death.
- Increased risk for those over 65 or with preexisting heart/lung conditions.
- Review health effects in the response plan.

Medical Treatment Rights

Employees have the right to seek medical treatment for wildfire smoke exposure without fear of reprisal. Employers must allow and facilitate this without punishment.

Obtaining AQI for PM2.5

Notify employees of resources used to track and monitor current conditions:

- [Washington's Air Monitoring Network Map](#)
- On-campus AQI readings from Purple Air | [Whitworth AQI](#)
- Air Quality WA mobile app (see QR codes to download)
- [Washington Smoke Information blog](#)
- [Fire and Smoke Map from the US Environmental Protection Agency \(EPA\)](#)

Respirator Usage

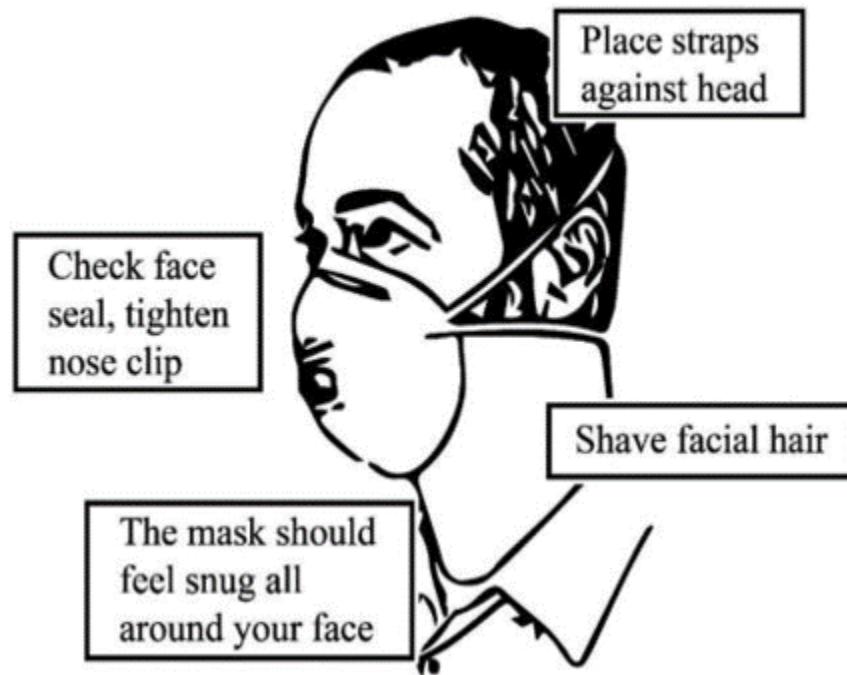
Respirators (minimum N95) protect against wildfire smoke if used correctly. Surgical masks, scarves, or bandanas do not offer protection. For AQI 151+, provide respirators for voluntary use; for AQI 400+, respirator use is mandatory, requiring enrollment in the Whitworth Respiratory Protection Program.

Proper Respirator Use and Maintenance

- Use only NIOSH-certified respirators for particulates.
- Follow manufacturer's instructions on use, maintenance, and care.
- Replace disposable respirators (e.g., N95) at the start of each shift.
- Contact the Health and Safety Manager if a medical condition makes respirator use difficult.
- Ensure a tight seal between the respirator and face for maximum protection.

Steps for Donning an N95 Respirator

- Place the mask over your nose and under your chin, with one strap below the ears and one above.
- Adjust the metal part over your nose for a secure fit.
- Perform user seal checks per the manufacturer's instructions.
- <https://www.youtube.com/watch?v=zNV6dK6Y-Ek>



Campus Announcement Regarding Wildfire Smoke

Audience: All community members

Title: Hazardous Wildfire Smoke Conditions and Exposure Prevention

Body:

Whitworth Community Members,

The air quality on campus has reached an actionable level and is currently at **** health category**. The forecast is predicting the AQI to improve/get worse over the next few days. Please visit the Emergency Wildfire Smoke Health and Safety Program webpage [HERE](#) for more details on how to protect yourself when the air quality deteriorates due to wildfire smoke and keep track of current conditions. If you have any questions, please do not hesitate to contact August Weil, HR manager, employment and health at aweil@whitworth.edu, or call 509.777.3236.